Geologic and Environmental Characteristics of Porphyry Copper Deposits with Brief Discussion of Associated Deposit Types

- 1. Introduction
- 2. Geologic Features
 - 2.1. Regional Setting
 - 2.2. Mineralization Style
 - 2.2.1. Hypogene Mineralization and Alteration
 - 2.2.2.Supergene Mineralization
 - 2.3. Associated Commodities
 - 2.3.1.Copper
 - 2.3.2.Molybdenum
 - 2.3.3.Gold
 - 2.3.4.Others Silver, PGM, Tellurium
 - 2.4. Associated Deposit Types and Their Exploration Potential USGS SW Alaska Assessment
 - 2.4.1. High Sulfidation Epithermal Deposits
 - 2.4.2.Skarn Deposits
 - 2.4.3. Polymetallic replacement and vein deposits
 - 2.4.4.Intrusion-related Gold Deposits
 - 2.4.5. Distal disseminated gold deposits
 - 2.4.6. Placer gold Liberty uranium & metals
- 3. Weathering Processes
- 4. Pre-Mining Baseline Geochemical Signatures
 - 4.1. Ground Water
 - 4.2. Surface Water
 - 4.3. Stream Sediment
 - 4.4. Soil
- 5. Mining and Ore-Processing Methods
 - 5.1. Open-Pit Mining
 - 5.2. Underground Mining
 - 5.3. Flotation and Smelting
 - 5.4. Solvent Extraction-Electrowinning
 - 5.5. Pyrite Roasting and Cyanidation for Gold Recovery
- 6. Volume of Mine Waste and tailings
- 7. Mine Waste Characteristics
 - 7.1. Mineralogy
 - 7.2. Acid-Base Accounting
 - 7.3. Geochemistry
 - 7.4. Pit Lakes
- 8. Ecosystem Issues
 - 8.1. Aquatic Ecosystems

- 8.2. Terrestrial Ecosystems
- 9. Human Health Issues
 - 9.1. Drinking Water
 - 9.2. Soil
- 10. Effect of Climate
- 11. Case Studies
 - 11.1. Fraser River Watershed
 - 11.2. Butte, Montana
 - 11.3. Kennecott, Utah
 - 11.4. Grasberg, Ok Tedi
 - 11.5. Others??
- 12. Brief Summary of Environmental Characteristics of Associated Deposit Types
- 13. References